# SCIENCE & GOVERNMENT REPORT

**16th Year of Publication**

**The Independent Bulletin of Science Policy**

Volume XVI, Number 20 | P.O. Box 6226A, Washington, D.C. 20015 | December 15, 1986

***IEEE Dissident Challenges 242-Vote Loss***

## Rare Battle for Top Post Rocks Engineering Society

Elections at the major scientific and professional societies are usually preordained affairs, subtly stage-managed by fulltime senior staffers, who prefer tranquility and far-away, part-time officers who are very busy with other work. But this year, the customary pattern has been seriously challenged at the biggest of all of these organizations, the 270,000-member Institute of Electrical and Electronics Engineers (IEEE).

In the official returns from voting for President-elect, a longtime anti-establishment campaigner in IEEE affairs, Irwin Feerst, has been judged second in a photo finish against the two official candidates put up by the IEEE's *apparatchiks*.

According to the official IEEE count, which Feerst is challenging, the winner was Russell C. Drew, with 18,374 votes. Feerst, who got on the ballot through a rank-and-file petition process, was listed with 18,132 votes, while the other official candidate, Merlin G. Smith, was listed with 15,828 votes. Voting, by mail ballots sent to the 202,000 eligible IEEE members, took place in September and was concluded by November 3. (Students and associate members are non-voters.)

***State, Local Agencies Boost R&D—Page 4***

The three-man field provided a clearcut contest between outsider Feerst and traditional IEEE insiders. Feerst went into independent consulting in 1969 upon leaving a professorship in physics and electronics at Adelphi University. Through a newsletter that he personally publishes and sends to 3700 IEEE members, *Committee of Concerned EE's* (PO Box 19, Massapequa Park, NY 11762), he has long assailed the IEEE leadership as unresponsive to the economic needs of working engineers. Feerst says IEEE has been captured by academic engineering and industrial management. In particular, he has strongly attacked the alleged "engineer shortage" as a management-inspired myth to hold down wages and promote the importation of bargain-rate foreign engineers. Via the petition route, this was Feerst's fifth and most successful try for the IEEE presidency.

Drew, who has served on many IEEE committees and boards, is a former naval officer and onetime member of the White House science office staff, and is currently President of Viking Instruments Corporation, Sterling, Va. The low man on the poll, Merlin G. Smith, is a senior manager at the IBM Watson Research Center, Yorktown Heights, NY.

Feerst told SGR that he's contesting the outcome on several grounds. He says that the mail-ballot count, which was conducted by a commercial organization, Independent Election Corporation of America, was observed by a Tellers Committee appointed by the IEEE Board, without any representative of his on hand. Furthermore, Feerst contends, his strongest constituency, working engineers, tend to move around a lot in pursuit of jobs, and he has doubts about how diligently the vote

*(Continued on page 2)*

## In Brief

**The mischief-laden concept of "sensitive but unclassified" scientific information was supposedly laid to rest last year by a Presidential directive stating that "classification shall be the means" for controlling scientific data. But it may all have been taken back by a directive issued in late October for "Protection of Sensitive but Unclassified Information in Federal Government Telecommunications and Automated Systems." The new directive is applicable not only to defense matters but also to "the wide range of government or government-derived economic, human, financial, industrial, agricultural, technological, and law-enforcement information . . . " The application of the directive has not yet been spelled out in specific regulations.**

*From a summary of proceedings of the ongoing American Association of Universities study of pork-barrel politics: "The use of the term 'peer review' is no longer politically astute; it has become an irritant to members of Congress." The study is chaired by Chancellor Donald W. Langenberg of the University of Illinois, Chicago. Research materials are not too distant. In the last session of Congress, the U. of Illinois Champaign campus raked in $27 million in an earmarked appropriation for a 100,000-square-foot Plant and Animal Sciences Research Center.*

**The latest in Soviet-American cooperation, according to Brent Scowcroft, a senior Reagan adviser, is a joint effort to raise the *Titanic*. Speaking to the AAAS arms-control colloquium last week, Scowcroft said, "We want the gold and silver. They want the technology."**

# . . . Science Societies Bask in Absence of Scrutiny

*(Continued from page 1)*
managers pursued them when the mailed ballots were non-deliverable.

According to a press release from IEEE headquarters, in New York, Feerst's challenge of the vote count will be reviewed by the IEEE Credentials Committee and "if there is a further challenge within the IEEE, it will be resolved by the IEEE Executive Committee." An official verdict on the disputed election is expected by January 1.

Feerst told SGR that he doubts a favorable outcome, but hasn't decided whether to pursue his challenge of the vote count if the verdict goes against him. However, the challenged election may turn out to be his last real chance for winning the IEEE presidency. In a counter-insurgency move, the IEEE Board has ruled that in the next election for President-elect, only one official candidate will be fielded, thus concentrating all the establishment votes on one candidate. If that Soviet-style technique had been used in the most recent election, Feerst's candidacy would have been obliterated.

## *Contest Raises Voter Turnout*

Feerst's campaign apparently stirred up the IEEE electorate a bit more than usual. By about 1000 signatures he exceeded the petition requirement of one percent of the electorate to get on the ballot. Elections in professional societies generally produce a low turnout, but according to the IEEE, 26.1 percent of the eligible voters returned their ballots in the recent voting, compared to 23 percent in several recent years.

A strong outside challenge is not unprecedented in the big associations, but it is rare. Alan C. Nixon, a gadfly precursor of Feerst, made it to the presidency of the American Chemical Society in 1973, and was effective in turning the ACS's attention to some problems of rank-and-file chemists. Nixon, currently a member of the ACS Council, recalled to SGR last week that one of his proudest achievements was establishment of a loan fund to provide legal aid for chemists involved in professional and employment disputes. The fund, he said, has since been discontinued, but he said there is some possibility of having it reinstated.

By and large, the professional societies are effectively under the direction of their full-time staffs. Only a minor slice of the electorate bothers to vote. (In the last election at the 135,000-member American Association for the Advancement of Science, about 27,000 votes were cast for the office of President-elect, for which only two official candidates were on the ballot.) The elected officers are almost always busy high-achievers, often based far from headquarters. Holding office for a few years, they attend meetings, usually a few months apart, for which the inhouse secretariat prepares the agenda and provides information.

It can be argued that despite the memberships' indifference to the inner workings of their professional organizations, the system is working reasonably well. The senior staffs usually appear to be highly capable and devoted to the stated purposes of their organizations. And a great many worthy activities are carried out by

*(Continued on page 3)*

## *Hush-Hush as AAAS Seeks Chief*

With the infantile penchant for secrecy that so often characterizes the internal affairs of professional societies, the American Association for the Advancement of Science has imposed a blackout around its preposterously prolonged search for a successor for its Executive Officer, William D. Carey, who has held the job since 1975.

Carey, 70, has been on a final approach for retirement for over two years, but has repeatedly put off his departure while a search committee of the AAAS Board has bumbled around in quest of a replacement. At one point, he was due to retire by December 1985. Lacking a successor, his departure was then vaguely extended to beyond the May 1986 AAAS meeting. Then it was extended to the end of this year. The latest information to leak out from the comically tight-mouthed AAAS Board is that Carey will now stay on to the next annual meeting, in February, and possibly beyond.

The search committee consists of the AAAS's top three officers, retiring President Gerard Piel, of *Scientific American*; President Lawrence Bogorod, of Harvard, and President-elect Sheila E. Widnall, of MIT.

The reason for the latest delay is that the candidate of choice, Alvin Trivelpiece, chief of research at the Department of Energy, wants to remain at DOE while preparation of the fiscal 1988 budget is in the homestretch. Of particular concern to Trivelpiece is the politically wobbly Superconducting Super Collider, for which his office has jurisdiction. If budget preparations and the SSC are the hangups, Trivelpiece could be sprung around March.

Trivelpiece has been publicly silent about his relations with the AAAS, except to complain, in response to an inquiry from SGR, that a reference to his candidacy, published here November 1, "has caused a great deal of trouble."

# . . . Professional Staffs Don't Strain to Get Out Vote

*(Continued from page 2)*

the associations. The fact is, however, that it is difficult to know whether responsible stewardship is being exercised by the appointed, usually permanent senior staffs, or whether the associations represent an exercise in unaccountability. One reason for lack of knowledge is that the science press pays very little attention to the politics of the professional societies.

A significant segment of the science press works for the publications of the professional societies. As for newspaper, newsweekly, and TV science journalists, they receive the research journals published by the associations and attend their scientific meetings to scoop up science news. But the kind of scrutiny that the press normally applies to federal research agencies is, with rare exception, withheld from the professional societies.

## *Behind the Association Curtain*

The result is that very little comes out about their internal affairs. For example, do the dues-paying members have any idea of the salaries paid to top staff brass at the societies? Or the types of expenses that are run up in the course of business? The answers might be surprising, especially to $23,000-a-year associate professors shelling out $60 a year for membership dues. Is it generally understood that many major scientific associations have evolved into big publishing houses—that they earn the bulk of their income from advertising, and that their traditional role as a meeting ground for scientists is among their lesser activities?

The dismally low turnout of voters in association elections is surely an unwholesome aspect in what are supposed to be democratically run organizations. The right to vote, of course, is accompanied by the right to abstain. But it is worth noting that the professional staffs do not engage in any loud drumbeating about elections. Might it be worth considering incentives for voting, such as a small reduction in the membership fee for returning a ballot? With computerized recordkeeping, that could be easily administered.

The professional associations, most of them bigger and richer than ever, remain virtually unexamined among important public institutions. SGR hears, for example, that a wondrous level of policy-related turmoil and machiavellian dagger work is routine at the American Psychological Association, where there are some differences of opinion concerning, among other things, the propriety of APA publishing *Psychology Today*. We will inquire when time permits.

The needless scuttling of *Science86* by the timid managers of the AAAS (SGR Vol. XVI, No. 13) ought surely to be the subject of a board of inquiry working in behalf of the AAAS members and the general public that the magazine was supposed to serve. But it will never be; nor has the science press delved into that episode, beyond reporting that it occurred.

Whatever the outcome of Feerst's challenge, his strong showing suggests that a substantial portion of the rank and file of the IEEE is discontented with the organization's attention to their professional needs. Are the other major professional organizations similarly out of touch? No one is looking hard for that answer and the managers of these organizations aren't volunteering embarrassing information.—DSG

## *Carnegie Promoting Youth Study*

Creation of a 24-member Council on Adolescent Development has been announced by the Carnegie Corporation. The Council, chaired by Carnegie President David A. Hamburg, is intended to "generate public and private action for the promotion of healthier adolescent development and the prevention of seriously damaging experiences in adolescence." For additional information: Avery Russell, Carnegie Corporation, 437 Madison Ave. New York, NY 10022; tel. 202/371-3200.

## *SGR Back Copies, Binders Available*

Back copies of *Science & Government Report*, going back to Vol. I, No. 1 (February 1, 1971), are available individually and in complete sets. For purchase information: SGR, PO Box 6226A, Northwest Station, Washington, DC 20015. Also available (same address): Embossed ring binders to hold two annual volumes of SGR. $8.95 per binder.

ISSN 0048-9581

© Science & Government Report, Inc., 1986

Editor and Publisher
**Daniel S. Greenberg**

Associate Publisher
**Wanda J. Reif**

Contributing Correspondents
**Francois Seguier (Paris); Ros Herman (London)**

Independently published by *Science & Government Report, Inc.*, twice monthly, except once each in January, July, August, and September. Annual subscription: Institutions, $195.00 (two years, $340.00). Information about bulk and individual rates upon request. Editorial offices at 3736 Kanawha St. N.W., Washington, DC 20015. Tel. (202) 244-4135. Second-class postage at Washington, D.C. Please address all subscription correspondence to Box 6226A, Northwest Station, Washington, DC 20015. Reproduction without permission is prohibited. SGR is available on Xerox International Microfilms. Claims for missing back issues will be filled without charge if made within six weeks of publication date.

# R&D Thriving as Remedy for Ailing Local Economies

Postwar research has long thrived on the Communist menace and fear of disease. Now, the politics of research is also being fired up by an old force that is rapidly gaining strength: Faith in science and technology as job makers in economically uncertain times.

Around the country, the result is a proliferation of local and regional organizations focused on developing scientific and technical capabilities as lures for industry. Their lines of influence connect to Washington, where high regard for R&D's presumed job-making prowess is the impulse behind the academic pork-barrel activities that have raged on Capitol Hill over the past three years. The argument that has mobilized Senators and Representatives to grab for money for university laboratory buildings is that they benefit not only the campus, but also make the local area more attractive for industry.

The often-cited inspirational models are Boston's Route 128, the North Carolina Research Triangle, and, until its recent reverses, Silicon Valley. The complex and poorly understood relationship between science and economic development is of little interest to harried legislators. What they all note for sure is that economic growth and science apparently go together.

## *Southern States Mount Effort*

The old Chamber of Commerce boosterism activities are the direct antecedent of these modernday ventures in science and technology as job makers. But the new efforts are more sophisticated and better orchestrated than such traditional ploys as tax remissions to attract a manufacturing plant. The latest, involving 12 southern states, plus Puerto Rico, has spawned a profusion of organizations bearing the titles of commission, council, committee, and board, but in general, they involve many of the same people, all focused on getting more research and high-tech activities into barren regions of the south.

The central body is the Southern Growth Policies Board, headquartered at North Carolina's Research Triangle Park. The Board is chaired by Arkansas Governor Bill Clinton and its other members are the Governors of Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, and Virginia. Formed last May as an offshoot of the Board was the Southern Technology Council. The Council, which has been set up on a two-year trial basis, focuses on boosting scientific and technological enterprise among its members.

Last month, a kind of manifesto for high-tech regional development was issued by another offshoot of the Board, the Committee on Technology and Innovation. One of a series of recent reports that have been inspired by enduring economic backwardness in large sections of the south, the Committee report reflects the popular faith in science as the route to prosperity.

"Choosing not to actively pursue technological development can relegate a state to an also-ran status," it declares, adding that "Support for and access to science and technology is an increasingly important factor in attracting investment, entrepreneurs, and productive people. Consequently, lack of such support inhibits technology-related growth and other forms of economic activity as well.

"There is little choice in supporting technology; it is imperative. There are, however, choices to be made: which activities are most appropriate and consistent with the state's economy and its long-range development plans, and which activities promise the greatest public payoffs. Those regions, states, and communities that are willing to adopt new ideas, invest in new technologies, and adapt quickly to technological change have the opportunity to participate in the technology renaissance."

The report continues with a bit of tantalizing history: "New England was a prime example of a region that was in distress not long ago, with manufacturing moving south and agriculture declining. The region now has the lowest unemployment rate and is among the fastest growing in the nation, with the largest proportion of its employment in technology-based industries. The South, with a vulnerable manufacturing base and declining agriculture, is now looking to innovative technologies to support a wide range of new manufacturing and service industries and to modernize its traditional manufacturing industries."

Similar language accompanies Ohio's efforts in the science-for-growth business. Known as the Thomas Edison Program (subtitle "Linking Technology and Enterprise in Ohio"), the program was started in 1983. Financed by the state, it provides matching funds for aca-

*(Continued on page 5)*

## *OTA Aide Takes Md. County Post*

The Montgomery County High Technology Council, which is pushing high-technology development in the booming Maryland suburb bordering on the District of Columbia, has announced the appointment of Paul B. Phelps as Vice President. Phelps was formerly project director for the Congressional Office of Technology Assessment's study of state and local technology-development programs. Over the past two years, he has been on loan to the State of Utah to help establish its Centers of Excellence Program.

## *OTA Cautions Against Unrealistic Expectations in High-Tech Efforts*

The Congressional Office of Technology Assessment looked two years ago at the regional R&D rush that was then just gaining headway, and OTA reported some of the few cautions that have been raised about this movement.

Stating that "State and local governments are attracted to high-technology industries because of this sector's rapid expansion and its presumed job-creating potential," OTA noted the belief that "high-technology industry can be a major force in the revival of distressed regions and cities, especially in the Midwest."

OTA continued: "Some critics, however, believe that high-technology job projections are unrealistically high or that its potential for reviving distressed areas has been overstated. Others suggest that the successes of California and New England in the 1970's may not provide useful models for the Midwest and other regions in the 1980's. Some of the strongest criticisms of these initiatives come from those who see in the rush to high technology a distinct danger of ignoring policies and programs that could be more beneficial to a State or local economy."

The OTA report also warned that these "high-technology initiatives may have only a marginal impact on HTD (high-technology development) in the short term and may be a zero-sum game from the national perspective if resources are simply spent to entice a firm to locate in one city or State rather than another." But on the positive side it found that "while some States and cities may still conduct 'raids' on their neighbors, they are also beginning to take actions to encourage economic activity that would not have happened without government intervention. This form of competition for HTD promises to have positive net results, because the emphasis is shifting toward strengthening the linkages among the financial, academic, and business communities; promoting entrepreneurship; and improving the overall scientific and technological base of State and local economies."

(These observations are contained in *Encouraging High-Technology Development*, OTA Background Paper No. 2, [96 pages, $5.00, GPO Stock No. 052-003-00959-5], available from the Superintendent of Documents, USGPO, Washington, DC 20402; tel. 202/783-3238.)

# . . . States are Providing Venture Funds, R&D Grants

*(Continued from page 4)*

demic-industrial high-tech partnerships, a network of technology centers "to focus on particularly promising general areas of research," and a variety of activities in advanced manufacturing techniques and other fields. Between January 1984 and March 1986, the Edison Seed Development Fund matched $5 million in state funds with $7.8 million in private funds for 46 separate projects based at universities in the state.

A compilation prepared by the National Governor's Association (NGA) Working Group on State Initiatives in Applied Research reports substantial activities in a score of states, but many other states and local governments are also involved. In almost all cases, the state funds are linked to private funds, and spending plans for the next fiscal year exceed the current figures. Following is the NGA list:

Connecticut, $17 million, risk capital

Idaho, $2 million, technology transfer

Illinois, $26 million, technology transfer, research facilities, and venture capital

Indiana, $20 million, venture capital

Iowa, $6 million, venture capital and research grants

Kansas, $1.3 million, grants and R&D facilities

Maryland, $1.8 million, research center

Massachusetts, $15 million, venture capital, research facilities, seed grants

Michigan, $53 million, research facilities, grants, small business R&D

Minnesota, $3.7 million, research facilities, grants, technical assistance, small business R&D

Missouri, $4 million, research parks, innovation centers, grants, small business R&D

Nebraska, $2 million, technology transfer

New Mexico, $5.5 million, research center, seed grants, technology transfer

New York, $3.5 million, venture capital, small business R&D, research center

Ohio, $50 million, technology centers, seed grants, university research

Oregon, $3.5 million, venture capital, research facilities

Pennsylvania, $41 million, seed grants, equipment, research center, venture capital (plus $25 million tax credits)

Tennessee, $200,000, State Technology Foundation

Utah, $2.5 million, seed grants

Virginia, $30 million, technology development, transfer

*(Continued on page 6)*

# In Print: US-German R&D Comparison, and Lots More

*The following publications are obtainable as indicated in the boldface headings—not from SGR.*

•

***From National Science Foundation, Division of Science Resources Studies, 1800 G St. NW, Washington, DC 20550; tel. 202/634-4622.***

*The Science and Technology Resources of West Germany: A Comparison with the United States* (58 pages, no charge). West Germany devotes 22 percent of its national R&D expenditures to basic research; 13 percent is the figure for the US. Twelve percent of the German government's R&D budget is allocated to military work; for the US, it's about 70 percent. These items are from the large collection of data in NSF's first detailed comparison of the R&D enterprises of the US and another industrially advanced nation. The report also compares education and employment, spending on fields of science and engineering, patents, high-tech trade, and so forth. Prepared by Jennifer Sue Bond, NSF Senior Staff Associate for International Science and Technology, the US-German comparison provides valuable background for the intensifying debate over the role of science and engineering in economic competitiveness.

*National Patterns of Science and Technology Resources 1986* (92 pages, no charge). The latest in NSF's statistics-packed annual series on where the US has been putting its R&D money from many years back to nearly up to the present.

•

***From National Planning Association, 1616 P St. NW, Washington, DC 20036; tel. 202/265-7685.***

*Employment of Natural Scientists and Engineers: Recent Trends and Prospects,* (64 pages, $25.00), by NPA Vice President Nestor E. Terleckyj. Reflecting the mounting uncertainty about how the supply of scientists and engineers will be affected by the declining size of the college-age population, this report pulls together scattered data on population, trained-manpower needs, career patterns, etc., and calls for more data collection and analysis, particularly on women in science and engineering.

•

***From National Science Foundation, Division of Policy Research and Analysis, Attn. Dr. Myles Boylan, 1800 G St. NW, Washington, DC 20550; tel. 202/357-7826.***

*Forces and Factors Influencing the Recruitment and Retention of Scientists, Engineers and other Professionals 1986-2010* (117 pages, no charge). An annotated literature guide prepared by J. F. Coates, Inc., for an NSF workshop in summer 1986 on "Future Labor Markets for Natural Scientists and Engineers in a Broad Economic Setting."

•

***From Office of Science and Technology Policy, Executive Office of the President, Attn. Alvin L. Young, Washington, DC 20506; tel. 202/395-3125***

*Committee on Interagency Radiation Research and Policy Coordination, Second Annual Report* (11 pages, no charge). Hidden away deep in the presidential staff bureaucracy is CIRRPC, the central governmental policy coordinating group for radiation safety. Thin in all respects (six pages of text, the rest is fluff), the report enumerates activities such as preparation of "a monthly legislative digest of Congressional activities related to radiation matters," assorted personnel changes, and creation of a task force "to develop a compendium of fact sheets containing legal and technical information on Federal radiation protection standards and guides, particularly those that protect the public."

*(Continued on page 7)*

## *High Tech* *(Continued from page 5)*

Wisconsin, $3.5 million, seed grants, technology transfer

The total funds are impressive in terms of the up-from-zero record that applies in most places, but compared to the $60 billion a year that the federal government now spends on R&D, the amounts are minuscule. However, their political importance is quite significant.

Each of these state and local enterprises to make wealth from science adds to Capitol Hill's interest in R&D. The members know that when the federal government's R&D agencies are flush with money, the chances improve for their constituents to share in it.

The first full year of Gramm-Rudman was expected to be rough on the scientific enterprise, but most of the science-supporting agencies did surprisingly well. The NSF budget went up by 11 percent, to a record high of $1.6 billion. Congress denied the Administration's request for an even bigger boost, but not out of disaffection with science. The NIH budget rose by nearly 20 percent, to a record $6.1 billion, over the protests of the White House.

A triad now moves the politics of science: National security gets the most for R&D, health comes next, and growing fast is the role of science for economic salvation. As the Reagan Administration unravels and domestic affairs regain priority in national concerns, the economic role of science will continue to gain importance in Washington's spending decisions.—DSG

# In Quotes: Takeovers Pose Threat to Industrial R&D

*From **The Technical Enterprise: Present and Future Patterns** (304 pages, $29.95, Ballinger, 1986), by Herbert I. Fusfeld, former Director of Research at AMF and Kennecott Copper, currently Director, Center for Science and Technology Policy and Professor of Management, Rensselaer Polytechnic Institute.*

•

An area which has the potential for adverse impact on the technical enterprise, particularly in the United States, is the ongoing process of "restructuring" within American industry . . . . The consequence of . . . takeovers, or of actions initiated in advance to avoid being vulnerable to a takeover, often involve a trimming away of product lines or a narrower focusing of business interests within an industry. This in turn is accompanied by a reduction in the amount of R&D expenditures and in the breadth of relevant technologies and exploratory technical activities undertaken . . . .

The oil industry has been the subject of much restructuring, driven by the impact of lower world oil prices. Hence, Phillips Petroleum is reducing its technical efforts, a direct fallout from the takeover activities of T. Boone Pickens and others . . . . The purchase of Crown Zellerbach by interests headed by Sir James Goldsmith has been followed by indications that it will close or drastically cut back its corporate research laboratory.

The gradual conversion of the American Can Company to emphasis on financial services, and the purchase of the Continental Corporation, have resulted in a lessening of R&D activity. The not-unfriendly mergers of Stauffer Chemical with Chesebrough Pond, and of Allied-Bendix with the Signal Corporation, will surely produce a decreased overall R&D effort. The Uniroyal Corporation, taking the initiative to refocus and streamline, has indicated plans to trim back R&D accordingly . . . .

The difficulty in all this is not that total R&D is reduced. The sum of all the reductions to date is probably on the order of $500 to $600 million, roughly one percent of all industry-funded R&D . . . . Rather, our long-term concern is with the potential decline in our capability for concentrating technical resources. This is, after all, perhaps the greatest US competitive advantage in technically based industrial growth. It relates to the size of the firm's revenue base, which, in the United States, derives from a large domestic market.

A major US corporation may be involved in several industrial sectors. Even if it is almost entirely in a single sector, there is a spread over many product lines or segments within that broad sector. In either case, the corporate research capability is supported by the sum of all these revenue sources. A major effort may be pursued that will be exploited in a single product area, but the technical resources devoted to it draw upon the overall corporate resources.

It is this characteristic of modern industrial research which is endangered by any widespread restructuring. A realistic abandonment of declining businesses can strengthen the overall corporation. But a deliberate narrowing of corporate interests based only on price/earnings ratio of stock can weaken the ability or the willingness of a corporation to conduct major technical programs in either a new or a mature business area. This would be a serious setback to a principal factor in US industrial competitiveness, the breadth and momentum of the industrial research base.

## *In Print* (*Continued from page 6*)

***From American Association for the Advancement of Science, Office of Communications, 1333 H St. NW, Washington, DC 20005; tel. 202/326-6440.***

*Effects of Regulations on the Use of Animals in Biomedical Research* (51 pages, no charge), transcript of discussion sponsored in July at the National Press Club by the AAAS and the Scientists' Institute for Public Information (which seeks to assist press coverage of scientific topics). Participants were from federal agencies and universities.

•

***From AAAS, Sales Office, 1333 H St. NW, Washington, DC 20005; tel. 202/326-6404.***

*Science and Security: The Future of Arms Control* (205 pages, $8.00), a collection of some 40 brief papers prepared as background material for the AAAS' First Annual Colloquium on Science, Arms Control, and National Security, Dec. 4-5 in Washington. Many of the leading participants and commentators in arms-control affairs are represented, including General James Abrahamson, Brent Scowcroft, Richard Garwin, Harold Brown, Paul Warnke, and Jack Runia. An excellent short course on the complexities of arms control, the volume is marred by the use of undersize, difficult-to-read type—puzzling in the new age of inexpensive computerized typesetting.

# Super Accelerator Collides with the Iran Scandal

The long step-by-step campaign to obtain a presidential go-ahead this year for the $6-billion Superconducting Super Collider (SSC) has been thrown off schedule by the White House's preoccupation with the Iranian arms scandal. The delay comes at a time when the goliath accelerator is increasingly being criticized as an overpriced luxury that's going to come out of the hides of the rest of science.

With the SSC's designs in an advanced state of completion, and presumably reliable cost estimates in hand, the high-energy entrepreneurs were hoping that Secretary of Energy Donald Herrington would approve the project this fall. But so far he hasn't said yes or no, despite having told Congress last February that "we are at a decision point" (SGR Vol. XVI, No. 4). Though officially silent, he's believed to be sympathetic to the SSC, if only because the physicists have suggested that otherwise, his footnote in history may only record that he killed one of the greatest scientific ventures of all time.

As things work in the budgetmaking process, a Cabinet officer's approval is required before a funding request is sent to the White House. Without that approval, the SSC remains stalled at the level of its champion, the Office of Energy Research at the Department of Energy. But sources around Herrington say that with the President and his senior staff enmeshed in the arms and money investigations, this is not the time to ask them to sit still for an explanation of something called the Superconducting Super Collider, price tag: $6 billion.

At this point, the delay is not serious, since there's some elasticity in the 10-year building program. But accelerator designs are perishable, and with Western Europe and the Soviet Union building major machines—though none on the scale of the 60-mile-around SSC—American physicists are increasingly concerned about their future in the financially ravenous discipline.

No funds for the SSC are being requested in the budget for fiscal 1988, which the President will send to Congress early next year. But DOE sources say that to obtain the $50 million in startup money that they'd like to have for fiscal 1989, they'll need approval very soon.

According to DOE estimates based on 1986 dollars, construction will cost $3.01 billion and detectors and other equipment another $1 billion. In terms of money "as spent," the total is expected to be $6 billion, expended over 10 years.

Congress has pressured DOE to obtain foreign financial participation in the venture, but with projects of their own to finance, neither Western Europe nor Japan is eager to underwrite American supremacy in high-energy physics. DOE vaguely reports that foreign "expressions of interest" may work out to $500 million in cost sharing, but details are scarce.

Meanwhile, the SSC is surrounded by conflicting political currents. As the biggest single piece of pork in federal R&D history, it has naturally aroused state and regional appetites. California, Texas, and perhaps a dozen other states are seriously in pursuit of the prize—which means they're spending money to get it—though DOE hasn't announced site specifications, let alone a date for receiving applications. But the enthusiasm on Capitol Hill translates into support for going ahead with the project.

On the other side, scientists outside of physics are worried about the bite that the SSC will take out of federal R&D spending in these difficult budget years. Typical of the doubters is Roland Schmitt, GE Chief Scientist and Chairman of the National Science Board, the policymaking body of the National Science Foundation. In an interview published last year by the Scientists' Institute for Public Information, Schmitt said, "Do you fix the multi-billion-dollar health of university research and education or do you build a Superconducting Super Collider? . . . . And if I were forced to answer it, I would very reluctantly, and with great agony, have to say: I think the top priority is getting the academic research and education base fixed first."

**Science & Government Report**
**Northwest Station**
**Box 6226A**
**Washington, D.C. 20015**

***SGR Holiday-Season Schedule***

The next issue of *Science and Government Report* will be published January 15, 1987.

**Second class postage paid at Washington, D.C.**

UNIVERSITY MICROFILMS INC.
SERIALS ACQUISITIONS
300 N. ZEEB RD.
ANN ARBOR, MI 48106